July 2002

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Malaysia

Malaysia is important to world energy markets because of its 75.0 trillion cubic feet of natural gas reserves and its net oil exports of over 260,000 barrels per day.

Note: All information contained in this report is the best available as of July 2002 and is subject to change

GENERAL BACKGROUND

Malaysia is currently in its fourth year of economic growth following a deep recession caused by the Asian financial crisis of 1997-98. Following a 7.5% decline in real gross domestic product (GDP) in 1998, Malaysia experienced real GDP growth of 6.1% in 1999 and 8.3% in 2000. Growth slowed to 0.4% in 2001 on weakened demand for the country's manufactured exports in the face of a global economic slowdown, but it is projected to recover to 3.4% in 2002. Imports of capital goods have been rising, which has lowered the country's merchandise trade surplus.

Malaysia's banking system has been stabilized, after being undermined by a high proportion of nonperforming loans during the financial crisis. The country's banking sector went through a major restructuring in 2000, with many weaker financial institutions being taken over by stronger ones. In order to stimulate the economy, the country's government has increased spending in 2001 and 2002, incurring a budget deficit of 6.5% of GDP in 2001.

Malaysia has maintained its policy of a fixed exchange rate between the ringgit and the U.S. dollar, which was imposed by Prime Minister Mahathir in September 1998, as part of capital controls designed to stem the outflow of short-term capital in the wake of the Asian financial crisis. Malaysian currency is considered somewhat undervalued at the present exchange rate of 3.8 ringgits to one U.S. dollar. Some of the capital controls imposed in 1998 have been relaxed in early 2001, such as the taxes on repatriation of short-term stock market profits by foreign portfolio investors.

Prime Minister Mahathir announced in June 2002 that he intends to relinquish his post, which he has held for two decades, in late 2003. The current Deputy Prime Minister, Abdullah Ahmed Badawi, is expected to succeed him.

OIL

Malaysia contains proven oil reserves of 3.0 billion barrels, down from 4.3 billion barrels in 1996. Despite this trend toward declining oil reserves (due to a lack of major new discoveries in recent years), Malaysia's

crude oil production has been stable in recent years, with monthly production numbers fluctuating between 650,000 barrels per day (bbl/d) and 730,000 bbl/d between 1996 and early 2002. In 2001, crude oil production averaged 659,205 bbl/d. After a pause during the Asian financial crisis, Malaysia's domestic petroleum product consumption is growing again, and the country is expected to become a net oil importer before the end of the current decade.

As a result of declining oil reserves, Petronas, the state oil and gas company, has embarked on an international exploration and production strategy. Currently, Petronas is invested in oil exploration and production projects in Syria, Turkmenistan, Iran, Pakistan, China, Vietnam, Burma, Algeria, Libya, Tunisia, Sudan, and Angola. Overseas operations now make up nearly one-third of Petronas revenue. In 2001, Malaysia exported the majority of its oil to markets in Japan, Thailand, South Korea, and Singapore.

Malaysia's domestic oil production occurs offshore and primarily near Peninsular Malaysia. Most of the country's oil fields contain low sulfur, high quality crude, with gravities in the 35^{o}-50^{o} API range. More than half of the country's oil production comes from the Tapis field, which contains 44^{o} API oil with a low sulfur content. Esso Production Malaysia Inc. (EPMI), an affiliate of ExxonMobil Corporation, is the largest crude oil producer in Peninsular Malaysia, accounting for nearly half of Malaysia's crude oil production. EPMI operates seven fields near the peninsula, and one-third of its production comes from the Seligi field. The Seligi-F platform, with its 28 wells, is the newest satellite in the Seligi field, located 165 miles off the coast of Terengganu, Peninsular Malaysia. Built at a cost of $155 million, Seligi-F is the seventh production platform on the Seligi field. The platform came on stream in March 1998 and is expected to produce an annual average of 21,000 bbl/d. EPMI holds a 78% interest in the project with Petronas Carigali holding the remaining 22%. In addition, EPMI began drilling the nearby Raya-A platform in the second quarter 1998. EPMI has invested $96 million in six wells, and holds an 80% interest with Petronas Carigali holding the remaining 20%. EPMI began production from the offshore Larut field in Block PM5 in early 2002, which is expected to reach peak production of 140,000 bbl/d, offsetting some of the future decline in Malaysia's production from mature fields.

In other developments, Sabah Shell Petroleum Company, a unit of Royal Dutch/Shell Group, raised production at the Kinabalu field to 36,000 bbl/d, as well as 28 million cubic feet per day (Mmcf/d) of gas. Production at Kinabalu, located in the SB-1 block 34 miles off the coast of Labuan, Sabah in east Malaysia, began in December 1997. As operator of the SB-1 block, Shell holds an 80% stake in the block, with Petronas holding a 20% stake. In February 1998, Amerada Hess signed two, five-year production sharing contracts (PSCs) with Petronas for blocks PM304 and SK306. The PSCs commit Amerada to $24.9 million of exploration activities on the two blocks. A successful well was reported in the PM 304 block in April 2001, but it is still under evaluation and a reserve estimate has not been announced. Under the PSCs, Amerada holds a 70% stake in PM304, offshore Terengganu, and an 80% stake in SK 306, offshore Sarawak, with Petronas holding the remaining interests in both blocks.

In February 2000, Sweden's Lundin Oil announced that it had signed a sales agreement with Petronas and PetroVietnam which will allow it to proceed with development of its long-delayed Bunga Kekwa project. Production stood at 18,000 bbl/d in April 2001, and is expected to increase to a volume of 40,000 bbl/d when development is completed in 2003. Lundin Oil is the operator of the field, and Petronas and Petrovietnam hold equity stakes in the project. Murphy Oil reported a modest-sized new find in Block SK309 in shallow waters offshore from Sarawak in February 2002. The new field is expected to be in production by early 2003.

Refining & Downstream

Malaysia has six refineries, with a total processing capacity of 514,500 bbl/d. The three largest are the 155,000 bbl/d Shell Port Dickson refinery and the Petronas Melaka-I and Melaka-II refineries, which each

have a capacity of 95,000 bbl/d.

The second phase of the $1.4-billion, 200,000-bbl/d Melaka refinery complex, located about 90 miles south of Kuala Lumpur, commenced operation in August 1998. The 100,000-bbl/d Melaka-II second phase is a joint venture between Petronas (45%), Conoco (40%), and Statoil (15%). This second refinery contains a 62,000-bbl/d vacuum distillation unit, 26,000-bbl/d catalytic cracker, 28,500-bbl/d hydrocracker, 35,000-bbl/d desulfurization unit, and 21,000-bbl/d coker. One of the main purposes of this refinery is to supply gasoline to Conoco's service stations in Thailand and a new line of stations planned for Malaysia. The first phase of the Melaka refinery was finished in mid-1994 and consisted of a 100,000-bbl/d sweet crude distillation unit, which is wholly-owned by Petronas and processes Tapis crude oil.

NATURAL GAS

Malaysia contains 75 trillion cubic feet (Tcf) of proven natural gas reserves. Natural gas production has been rising steadily in recent years, reaching 1.50 Tcf in 2000, up from 1.42 Tcf in 1999. Natural gas consumption in 2000 was estimated at 0.72 Tcf, with LNG exports of 0.74 Tcf (mostly to Japan, South Korea, and Taiwan). Exports had dipped slightly in 1998 as a result of the Asian financial crisis, but began to climb again in 1999 and 2000.

One of the most active areas in Malaysia for gas exploration and development is the Malaysia-Thailand Joint Development Area (JDA), located in the lower part of the Gulf of Thailand and governed by the Malaysia-Thailand Joint Authority (MTJA). The MTJA was established by the two governments for joint exploration of the once-disputed JDA. The JDA covers blocks A-18 and B-17 to C-19. A 50:50 partnership between Petronas and Amerada Hess is developing block A-18, while the Petroleum Authority of Thailand (PTT) and Petronas also share equal interests in the remaining blocks. PTT and Petronas announced an agreement in November 1999 to proceed with development of a gas pipeline from the JDA to a processing plant in Songkla, Thailand, and a pipeline linking the Thai and Malaysian gas grids. Malaysia and Thailand will eventually each take half of the gas produced, though initial production will go just to Malaysia. The project had been controversial in Thailand, facing opposition from local residents in Songkla along the pipeline route. In May 2002, the Thai government announced a final decision to commence construction on the project later in 2002, through the pipeline route was altered slightly to avoid some populated areas.

Block A-18 is operated by a joint venture between Amerada Hess, BP, and Petronas. In December 1997, the MTJA approved a development plan for the Cakerawala gas field, which will be the first JDA field to come on line. In November 1999, a gas sale agreement was signed with Petronas and PTT, which will allow the firms to proceed with development. Gas production of 390 Mmcf/d will begin in early 2003.

ExxonMobil announced in March 2002 that it would move forward with development of the offshore Binting gas field in the South China Sea. The field contains about 1 Tcf of proven reserves, and is expected to reach a peak output of 335 Mmcf/d. Drilling is set to commence in late 2002.

Malaysia accounted for approximately 15% of total world LNG exports in 2000. After a brief downturn related to the Asian financial crisis, demand for LNG is rising again. After much delay, Malaysia is proceeding with a long-planned expansion of its Bintulu LNG complex in Sarawak. In February 2000, Petronas signed a contract with a consortium headed by Kellogg Brown and Root for construction of the MLNG Tiga facility, with two LNG liquefaction trains and a total capacity of 7.6 million metric tons (370 Bcf) per year. The Bintulu facility as a whole will then be the largest LNG liquefaction center in the world, with a total capacity of 23 million metric tons per year (1.1 Tcf). Financing for the MLNG Tiga facility was completed in April 2001, and it is expected be begin operation in 2003. Most of the production from the new LNG trains will be sold under term contracts to utilities in Japan. Tokyo Electric Power (TEPCO), Tokyo Gas, and Chubu Electric all have signed contracts for LNG from the project.

In addition to LNG, Malaysia exports 150 million cubic feet per day (Mmcf/d) to Singapore via pipeline. Surprisingly, Malaysia may also become an importer of gas from Indonesia. Petronas signed an agreement in April 2001 with Indonesia state oil and gas company Pertamina for the import of gas from Conoco's West Natuna offshore field in Indonesian waters. The move is being seen as part of a Malaysian strategy to become a hub for Southeast Asian natural gas integration. Deliveries are scheduled to begin once pipeline construction is complete in August 2002. The pipeline will connect to an existing pipeline from the shore to Malaysia's offshore Duyong field, which will help minimize construction costs. There also have been preliminary discussions of a project to link gas deposits off Sarawak to the Philippines.

ELECTRICITY

Malaysia currently has approximately 13 gigawatts (GW) of electric generation capacity, of which 84% is thermal and 16% is hydroelectric. In 2000, Malaysia generated around 63 billion kilowatthours of electricity. The Malaysian government expects that investment of $9.7 billion will be required in the electric utility sector through 2010. Much of that amount will be for coal-fired plants, as the Malaysian government is promoting a shift away from the country's heavy reliance on natural gas for electric power generation.

A contract was signed in December 2000 between a local Malaysian independent power producer (IPP), GB3, and Alstom for an additional 650-MW generation unit to be built at the site of the Lumut Power Plant. Siemens received contracts in December 2000 for two 710-MW power plants, one at Teluk Gong for the IPP Powertek, and one in Sepang for Malaysian Resources Corporation.

Some other projects have been called into question, though, in the short-term, due to the decline in the country's economic growth rate. The 2,100-MW Pulau Bunting project and the 1,400-MW Jimah project, both coal-fired, may be delayed as a result of slowing electricity demand growth.

In 1994, the Malaysian government granted approval for the massive 2.4-GW Bakun hydroelectric project in Sarawak. Scheduled for completion in 2002, the Bakun Dam had been slated to send 70% of its generated power from Sarawak to Kuala Lumpur through the construction of 415 miles of overhead lines in eastern Malaysia, 400 miles of submarine cables, and 285 miles of distribution infrastructure in Peninsular Malaysia. In addition, expansion plans included a high voltage line south to Johor Baharu and north to Perlis, near the western Thai border. A local company, Ekran, was awarded a turnkey contract to manage the project in January 1995. In 1996, the construction contract went to Sweden's Asea Brown Boveri (ABB). However, in early September 1997, the Malaysian government announced that it was delaying the project indefinitely, citing an unexpected rise in the dam's cost due to the country's economic difficulties.

In mid-1999, work resumed on the river diversion tunnels, a major component of the project, which have since been completed. The Malaysian government has taken control of the project and negotiated financial settlements with the firms involved. The subsea transmission line concept has been abandoned, and the Malaysian government is exploring the possibility of sales of electricity to Brunei and Indonesia. While it had appeared likely that the project would be scaled back from its 2,400-MW capacity, the Malaysian government announced in February 2001 that it had decided to complete the project on its original scale. Bids were received in July 2002 for the main construction work for the dam, and a contract is expected to be awarded by fall 2002.

Malaysia is considering reforms to its power sector to make it more competitive and lower costs. Currently, three state-owned utilities dominate power generation and distribution in Malaysia. The market was opened to independent power producers (IPPs) in 1994, and 15 IPPs were licensed, though not all of the projects have been built.

In recent developments, Tenaga Nasional Bhd, the main state-owned utility, began in 1999 to divest some of its power generation units. Eventually, Malaysia expects to achieve a fully competitive power market, with generation, transmission, and distribution decoupled, but reform is still at an early stage and the exact process of the transition to a competitive market has not been decided. The issue is still under study, and many observers have voiced caution in light of the experiences of other deregulated utility systems.

Sources for this report include: Asiaweek; Bernama News Agency; Dow Jones Newswire service; Economist Intelligence Unit ViewsWire; Oil and Gas Journal; Petroleum Economist; Petroleum Intelligence Weekly; New Straits Times; Project Finance; U.S. Energy Information Administration; DRI/WEFA Asia Economic Outlook; World Gas Intelligence.

COUNTRY OVERVIEW

Prime Minister and Minister of Home Affairs: Dr. Mahathir Mohamad
Independence: August 31, 1957 (from United Kingdom)
Population (2001E): 22.2 million
Location/Size: Southeast Asia/127,320 sq. mi. (slightly larger than New Mexico)
Major Cities: Kuala Lumpur (capital), Ipoh, Melaka, Johor Baharu, Penang, Kota Baharu, Georgetown, Kuching
Languages: Malay (official), English, Chinese dialects, Tamil, tribal dialects
Ethnic Groups: Malay and other indigenous (58%), Chinese (26%), Indian (7%), others (9%)
Religion: Islam, Buddhism, Confucianism, Hinduism, Christianity, various tribal
Defense (8/98): Army (85,000), Navy (12,500), Air Force (12,500)

ECONOMIC OVERVIEW

Currency: Ringgit
Market Exchange Rate (7/29/02): $1 = 3.8 ringgits
Gross Domestic Product (market exhange rates) (2001E): $91.9 billion; **(2002E):**$97.8 billion
Real GDP Growth Rate (2001E): 0.4%; **(2002E):** 3.4%
Inflation Rate (consumer prices)(2001E): 1.4%; **(2002E):** 1.6%
Current Account Balance (2001E): $5.6 billion; **(2002E):** $9.4 billion
Major Trading Partners (2002): Singapore, Japan, United States, European Union
Merchandise Exports (2001E): $90.0 billion; **(2002E):** $93.2 billion
Merchandise Imports (2001E): $75.6 billion; **(2002E):** $75.4 billion
Major Export Products: Petroleum and petroleum products, palm oil, rubber, tin, electronic equipment
Major Import Products: machinery equipment, chemicals and food
External Debt (2002E): $34.3 billion

ENERGY OVERVIEW

Minister of Energy, Telecommunications, and Posts: Dato' Leo Moggie Anak Irok
Proven Oil Reserves (1/1/02E): 3.0 billion barrels
Oil Production (2001E): 730,205 barrels per day (bbl/d), of which 659,205 bbl/d is crude oil
Oil Consumption (2001E): 460,000 bbl/d
Net Oil Exports (2001E): 270,205 bbl/d
Crude Oil Refining Capacity (1/1/02E): 514,500 bbl/d
Natural Gas Reserves (1/1/02E): 75.0 trillion cubic feet (Tcf)
Natural Gas Production (2000E): 1.50 Tcf
Natural Gas Consumption (2000E): 0.72 Tcf
LNG Exports (2000E): 0.74 Tcf
Recoverable Coal Reserves (12/31/96): 4 million short tons
Coal Production (2000E): 0.2 million short tons
Coal Consumption (2000E): 3.3 million short tons

Net Coal Imports (2000E): 3.1 million short tons
Electricity Generation Capacity (1/1/00): 13.0 gigawatts (84% thermal, 16% hydroelectric)
Electricity Generation (2000E): 63 billion kilowatthours

ENVIRONMENTAL OVERVIEW
Minister of Science, Technology and Environment: Law Hieng Ding
Total Energy Consumption (2000E): 1.9 quadrillion Btu* (0.46% of world total energy consumption)
Energy-Related Carbon Emissions (2000E): 29.9 million metric tons of carbon (0.46% of world total carbon emissions)
Per Capita Energy Consumption (2000E): 79.8 million Btu (vs U.S. value of 351.1 million Btu)
Per Capita Carbon Emissions (2000E): 1.3 metric tons of carbon (vs U.S. value of 5.6 metric tons of carbon)
Energy Intensity (2000E): 16,631 Btu/$1995 (vs U.S. value of 10,919 Btu/$1995)**
Carbon Intensity (2000E): 0.27 metric tons of carbon/thousand $1995 (vs U.S. value of 0.17 metric tons/thousand $1995)**
Sectoral Share of Energy Consumption (1998E): Industrial (52.2%), Transportation (25.4%), Residential (10.9%), Commercial (11.5%)
Sectoral Share of Carbon Emissions (1998E): Industrial (51.9%), Transportation (30.2%), Residential (7.3%), Commercial (10.6%)
Fuel Share of Energy Consumption (2000E): Oil (50.0%), Natural Gas (40.9%), Coal (4.8%)
Fuel Share of Carbon Emissions (2000E): Oil (56.1%), Natural Gas (36.6%), Coal (7.3%)
Renewable Energy Consumption (1998E): 110.2 trillion Btu* (17% increase from 1997)
Number of People per Motor Vehicle (1998): 5.8 (vs U.S. value of 1.3)
Status in Climate Change Negotiations: Non-Annex I country under the United Nations Framework Convention on Climate Change (ratified July 13th, 1994). Signatory to the Kyoto Protocol (signed March 12th, 1999 - not yet ratified).
Major Environmental Issues: Air pollution from industrial and vehicular emissions; water pollution from raw sewage; deforestation; smoke/haze from Indonesian forest fires.
Major International Environmental Agreements: A party to Conventions on Biodiversity, Climate Change, Desertification, Endangered Species, Hazardous Wastes, Law of the Sea, Marine Life Conservation, Nuclear Test Ban, Ozone Layer Protection, Ship Pollution, Tropical Timber 83, Tropical Timber 94.

* The total energy consumption statistic includes petroleum, dry natural gas, coal, net hydro, nuclear, geothermal, solar, wind, wood and waste electric power. The renewable energy consumption statistic is based on International Energy Agency (IEA) data and includes hydropower, solar, wind, tide, geothermal, solid biomass and animal products, biomass gas and liquids, industrial and municipal wastes. Sectoral shares of energy consumption and carbon emissions are also based on IEA data.
**GDP based on EIA International Energy Annual 2000

OIL AND GAS INDUSTRIES
Organization: Malaysia's national petroleum corporation, Petroliam Nasional Berhad (Petronas), was formed in 1974. Petronas controls oil production through partnerships with Exxon (Esso Production Malaysia) and Shell (Sabah Shell Petroleum, Sarawak Shell Berhad, and Sarawak Shell/Petronas Carigali)
Major Foreign Oil Company Involvement: BP Amoco, Conoco, Enron, ExxonMobil, Lundin Oil, Murphy Oil, Nippon Mitsubishi Oil, Occidental, Shell, Texaco, Triton
Major Oil Fields: Bekok, Bokor, Erb West, Bunga Kekwa, Guntong, Kepong, Kinabalu Pulai, Samarang, Seligi, Semangkok, Tapis, Temana, Tiong
Major Natural Gas Fields: Bedong, Bintang, Damar, Jerneh, Laho, Lawit, Noring, Pilong, Resak, Telok, Tujoh
Major Oil Refineries (capacity - bbl/d): Port Dickson-Shell (155,000), Melaka I (95,000), Melaka II

(95,000), Kerteh-Petronas (40,000), Port Dickson-Esso (84,500), Lutong-Shell (45,000)
Major Oil Pipelines: Malaysia-Singapore pipeline, planned Malaysia - Songkhla (Thailand) product pipeline
Major Oil Terminals: Bintulu, Johor Baharu, Kerteh, Kuching, Melaka, Penang, Port Dickson, Port KelangFor more information from EIA on Malaysia, please see:

Links

EIA - Country Information on Malaysia

Links to other U.S. government sites:
CIA World Factbook - Malaysia
U.S. Department of Energy - Office of Fossil Energy - Malaysia
U.S. State Department Consular Information Sheet - Malaysia
U.S. State Department Country Commercial Guide - Malaysia
U.S. Embassy in Malaysia

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Malaysia's Department of the Environment, in the Ministry of Science, Technology, and the Environment
Permanent Mission of Malaysia to the United Nations
New Straits Times
Lonely Planet Guide: Malaysia

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